HR ANALYTICS

ABS Inc. Talent Turnover Issue

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Group 13

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2 INTRODUCTION

2.1 BACKGROUND

With over two hundred employees ABS Tech is dependent on its skilful employees. Maintaining these employees is important not only because of the costs of talent loss, but also to preserve the specialised and accumulated experience (Ott, Tolentino, & Michailova, 2018). To stay competitive, it is important to retain the talents that the organisation has attracted.

During the last years it has been observed empirically that the company has had a high turnover rate (Figure A1-2). Thus, this report will try to address these concerns.

2.2 WHAT IS TALENT?

Talent is a combination of multiple things, that when added together results in the individual being able to achieve significant and valued performance (Ryans, Hindsman, & Duke, 1960). For the organisation, this would mean that the employee creates value, i.e., either revenue-generating or culture-building. This underscores the idea that talent extends beyond mere work performance and must include the ability to foster a good environment that contributes to the company's success. (Ott, Tolentino, & Michailova, 2018).

However, it is partly the organisations responsibility to create a foundation in which the individual may express their talent (Collings & Mellahi, 2009). The analysis will therefore explore employee performance, work environment and career opportunities within ABS Tech.

2.3 BUSINESS QUESTION

To what extent does ABS Tech foster employee performance, work environment and career opportunities for their employees?

3 ANALYSIS

3.1 EMPLOYEE PERFORMANCE

It has been concluded that an important part of talent is performance. With the data that was gathered, some features provide data on this. The features that were selected for this analysis were *Perfscore*, *AssColl*, *AssSelf*, *AssLead,* and *TechLev*. All the features indicate how an employee is/was performing and is graded by different individuals so that the data is less biased (Nangia & Enderes,

2020). The features will undergo analysis to see what differences there might be between the employed and terminated individuals.

The hypothesis is that talents are leaving, which would indicate that the employees that are leaving will perform higher or at par compared to the current employees. Following the pandemic, companies have seen high turnovers, including ABS Tech (Morgan, 2021). Therefore, it is interesting to see if the job performance of those who have left is higher compared to those staying. This was done by doing a two-sample t-test.

The results of the t-test – that was made on all features separately – were opposite to the narrated explanation that has been given by management. There were no significant results ($\alpha = 5\%$) when testing for a higher mean among the terminated job group versus the staying group, in any year. The same goes for grouping by department. Instead, they were **significantly lowe**r in the departing group, even when considering other effects such as the reason for leaving. This is highlighted in figure 1, for *AssSelf*.
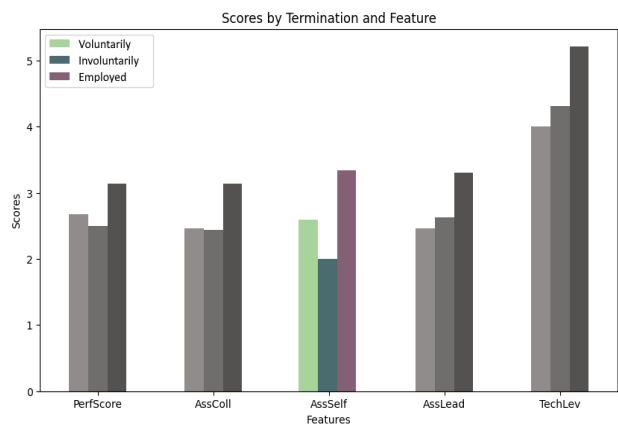

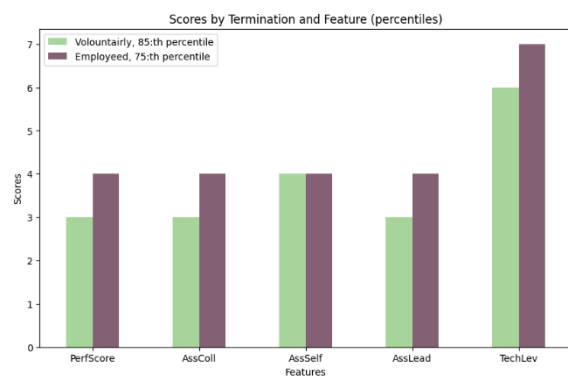**Figure 1.** *Performance scores by termination*

Figure 2. *Comparing 85:th percentile of terminated employees vs 75:th percentile of current employees*

The consensus in case studies and research is that a small proportion of the workforce are talents (Keller & Schaninger, 2018). Focusing on the 85:th quantile of the voluntarily terminated vs. 75:th quantile of current workforce, we can see if (performance) talent is leaving. In figure 2 this can be observed, and as before the current workforce is stronger – even though current workforce has a lower quantile – leading to the conclusion that (performance) **talent is not leaving** the company to the extent management is believing.

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3.2 WORK ENVIRONMENT

Employees spend a significant portion of their time at work. Therefore, a good work environment is essential to retain talents in an organisation. Not only does it have an impact on their well-being, but it can also boost engagement, job satisfaction and, ultimately, productivity (Raziq & Maulabakhsh, 2015). The hypothesis is that a negative work environment at ABS is causing employees to leave the company.

Firstly, a **Logistic Regression** (LR) model was applied to the dataset. The features in figure 3 were found to have the greatest influence on voluntary termination.

Raziq & Maulabakhsh (2015) found that **hygiene factors** such as safe working conditions, collaboration, granting recognition and responsibility to co-workers, are key in building a good working environment. Hence, the variables in figure 4 were selected as a measure of the quality of the work environment at ABS. Figure 5 shows employees who stopped working at ABS have lower scores on each of the indicators. This immediately suggests that a negative work environment could potentially be among the (indirect) causes of termination.
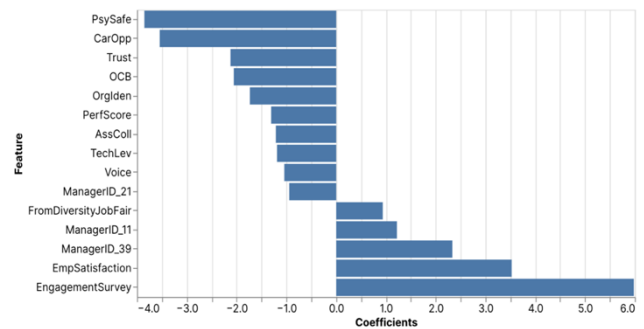
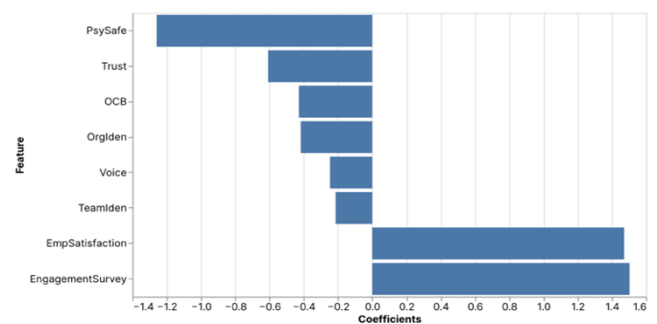**Figure 3.** *Most important features according to LR model*

Figure 4. *Selected features by combining LR model and literature.*
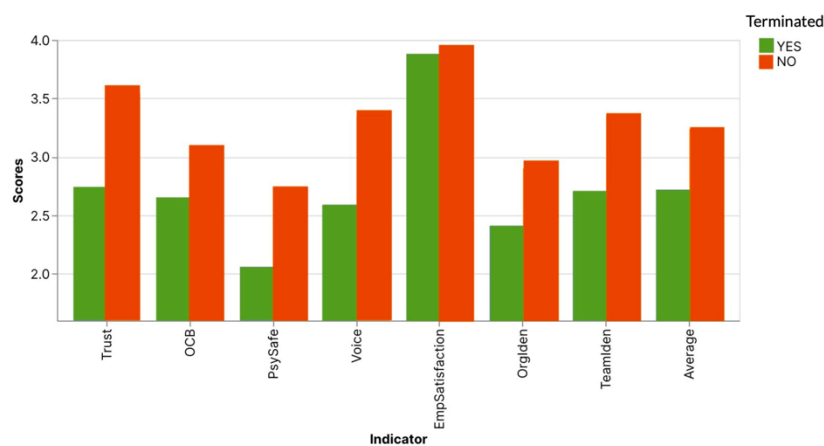
Figure 5. *Comparison of scores between employed and not employed.*

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In order to investigate whether the work environment was a general or department-specific issue, employees were grouped by their corresponding departments and the mean values for the indicators were calculated. Figure 6 shows that the average scores were relatively low for all departments (≈3/5 = 60%). Carrying out a t-test confirmed that there was **no significant** difference in the work environment between the different departments (see Table 1), which suggests that there is room for improvement within all the departments.
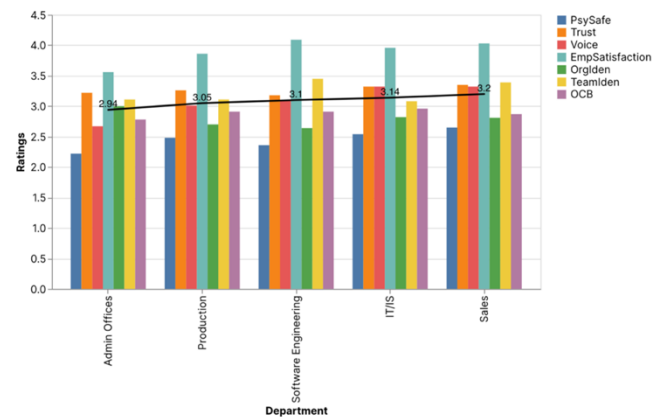

Figure 6. Work environment indicators per department

	Admin Offices	Production	Software Eng.	IT / IS	Sales
Admin Offices	-	-	-	-	-
Production	0.375	-	-	-	-
Software Eng.	0.507	0.686	-	-	-
IT / IS	0.488	0.550	0.564	-	-
Sales	0.446	0.420	0.655	0.716	-

Table 1. P-values testing H_0 "The work environment is the same in all departments" (α = 5%)

On the other hand, by grouping employees by their team lead, a clear trend becomes noticeable. Managers whose employees report lower trust, voice, engagement and psychological safety scores, are directly linked to a high termination ratio (figure 7). The top and bottom four managers were then selected based on these indicators (figure 8).
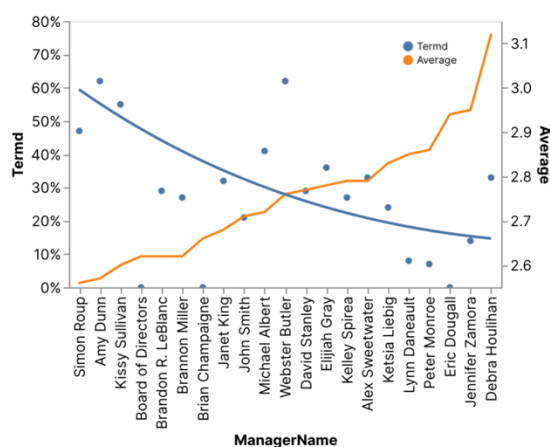

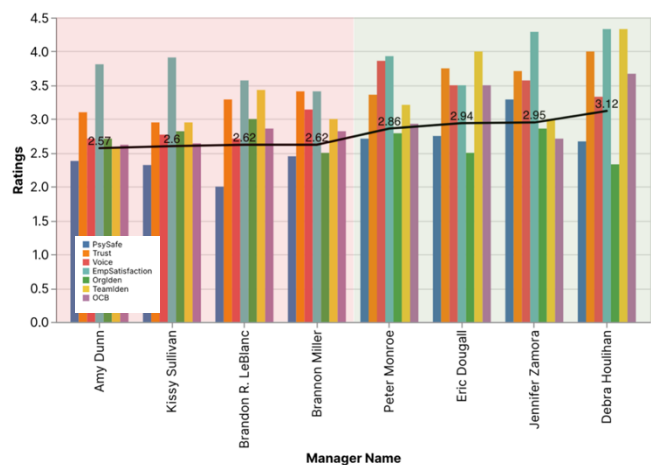*Figure 7.* Average of selected indicators per manager and termination ratio

Figure 8. Top and bottom four managers and their corresponding scores

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3.3 CAREER OPPORTUNITIES

3.3.1 Salary comparison

The absence of opportunities and inadequate **compensation** for skilled and experienced workers are among the primary factors that influence employees to resign voluntarily (Ott, Tolentino, & Michailova, 2018). The hypothesis is that a lack of job opportunities is causing workers to leave ABS.

Upon analysing the salaries of employees, it was found that the difference in salaries between talents and ordinary workers is **insignificant** (p-value = 0.176). The average salary of an ordinary worker is $69,773 whilst talents earn $73,585 on average. The same applies to senior employees. The t-test shows that the difference compared with junior employees is even more insignificant (p-value = 0.551; senior: $71,024; junior: $68,845). This suggests that the salary and **promotion mechanism** is improvable.

3.3.2 Employee Complaints

Termination reasons can be treated as complaints about the company. Figure A3 shows that 85% of terminations were **voluntary**. Therefore, analyzing why they chose to leave can serve as a means of identifying areas for improvement in the company's governance. The most relevant features were then filtered out using a logistic regression model, combined with human judgement (figure A4).

The feature *JobStr* was found to be positively correlated with "*more money*", "*unhappy*", and "*career change*", implying that the occupational **pressure** in ABS is relatively high; and that pressure is not proportional to the rewards offered. Increasing salaries can reduce the generation of "*unhappy*", while a higher value of *CarOpp* causes less "*career change*" complaints. Undoubtedly, *ConHour* has the greatest positive correlation with employees who choose to leave because of long working hours.

4 CONCLUSION

ABS has high turnover rates. However, talent is not leaving to the extent management considers. Firstly, the organization is struggling with a negative **work environment** that has resulted in employee dissatisfaction and reduced motivation. Secondly, the high **hours**, job **stress**, lack of **career opportunities**, and **salary** contributed to employees seeking opportunities elsewhere. By addressing these concerns, ABS can improve its retention rates and foster a more engaged and productive workforce. In Section 5, the report will cover several suggestions on how to improve these problems.

5 SUGGESTIONS

5.1 RECOMMENDATIONS AND MACHINE LEARNING SIMULATIONS

5.1.1 Better working environment

ABS's working environment is mainly related to psychological factors (see Section 3.2). According to **Maslow's hierarchy** of needs theory, psychological factors are crucial to the cultivation and growth of people within an organization (Maslow, 1943).

Figure 9 contains four recommendations based on previous research. The first two focus on enhancing enterprise cohesion, while the last two emphasize respect for employees and concern for their **psychological needs** (Melhem & AI Qudah, 2019).

By machine learning **simulation**, it was found that improving the psychological features in Section 3.2 by 10% will result in no more talents leaving voluntarily. By improving them by 20%, the rate of voluntary terminations will fall by approximately 60% (figure 11).

Improve Work Environment

1. Formulate and **unify company slogan**/spirit
2. Regular **ice-breaking** activities
3. Establish **Psychological consultation** room
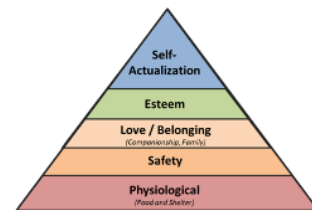4. *Encourage* employees to their express ideas

Figure 9. Recommendations to improve working environment.

5.1.2 Reducing complaints

The analysis in Section 3.3, suggests that employees mainly complain about their **working hours**, **salaries** and **career opportunities**. Figure 10 shows three suggestions that will potentially alleviate these concerns.

By simulation, a 5% reduction in working hours would eliminate complaints about working hours. Additionally, a 20% improvement in the features mentioned in Section 3.3.2 will eliminate almost all complaints as seen in figure 12.

Minimize Termination Reasons

1. Optimize **salary** & **promotion** mechanism
2. Provide **flexible** working hours
3. Regular vocational skills **trainings**

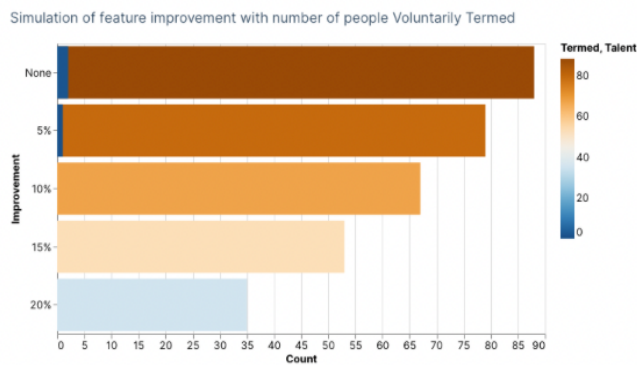*Figure 10. Recommendations for reducing complaints.*

Figure 11. *Simulation of psycological feature improvement with number of people Voluntarily terminated.*
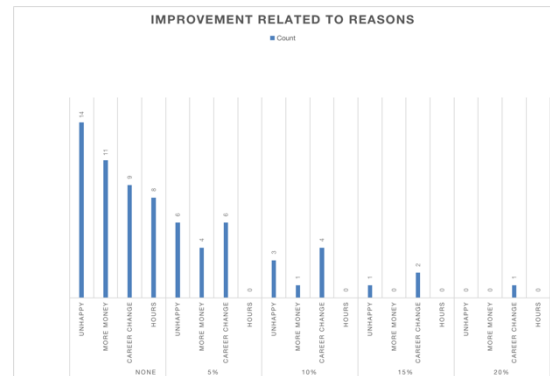

Figure 12. *Simulation of feature improvement with number of people Voluntarily terminated per reason*

5.2 PREDICTIVE ANALYSIS

Section 2 of the analysis involved utilizing a logistic regression model, which effectively predicted which employees were likely to leave the company with a recall-value of 96.15%. This model can be used to anticipate an employee's termination. By focusing attention on these individuals and addressing their concerns, ABS could potentially prevent employee departures and improve retention rates. In combination with the previous suggestions, ABS tech will potentially solve its talent turnover issue.

6 REFERENCES

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7 APPENDIX

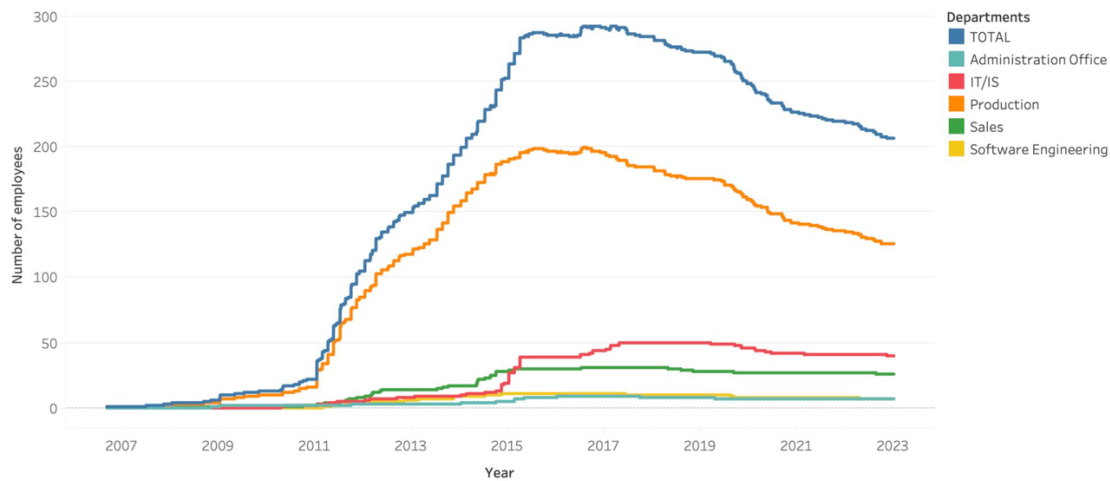Evolution of the Number of Employees at ABS – Grouped by Department

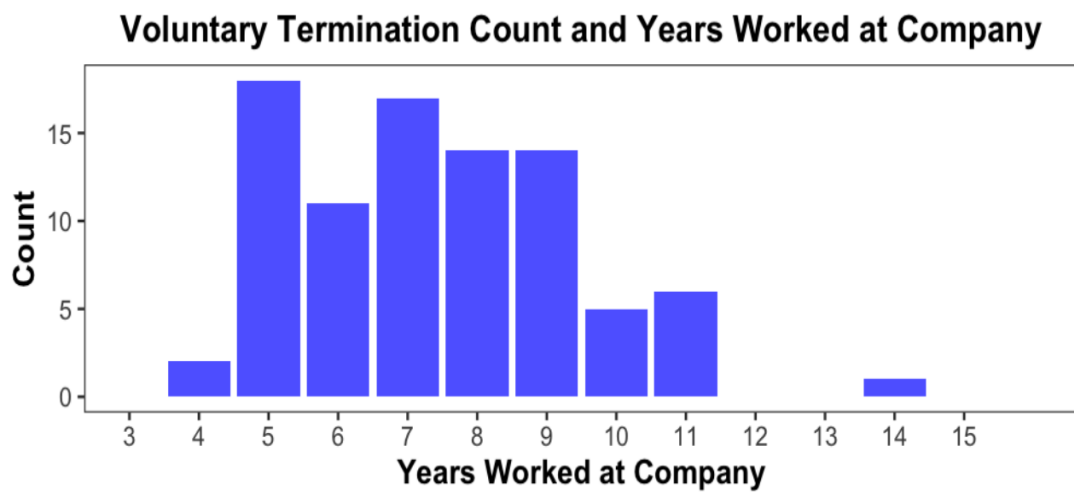***Figure A1****. Number of employees at ABS over time*

Figure A2*. Number of employees voluntarily leaving with working years*

	TermReason	n	Relative Frequency	Cumulative Frequency
1	Another position	20	22.73%	22.73%
2	unhappy	14	15.91%	38.64%
3	more money	11	12.50%	51.14%
4	career change	9	10.23%	61.36%
5	hours	8	9.09%	70.45%
6	relocation out of area	5	5.68%	76.14%
7	return to school	5	5.68%	81.82%
8	military	4	4.55%	86.36%
9	retiring	4	4.55%	90.91%
10	maternity leave – did not return	3	3.41%	94.32%
11	medical issues	3	3.41%	97.73%
12	attendance	1	1.14%	98.86%
13	performance	1	1.14%	100.00%

Figure A3. Number and percentage of per Term Reason
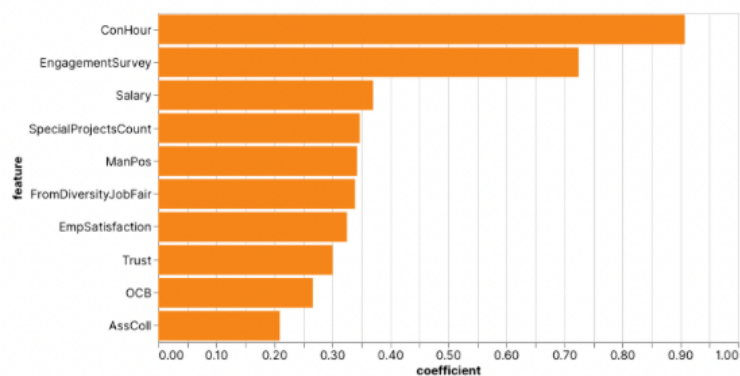

Figure A4.1 Important Features related to Unhappy.

Figure A4.2 *Important Features related to Hour.*
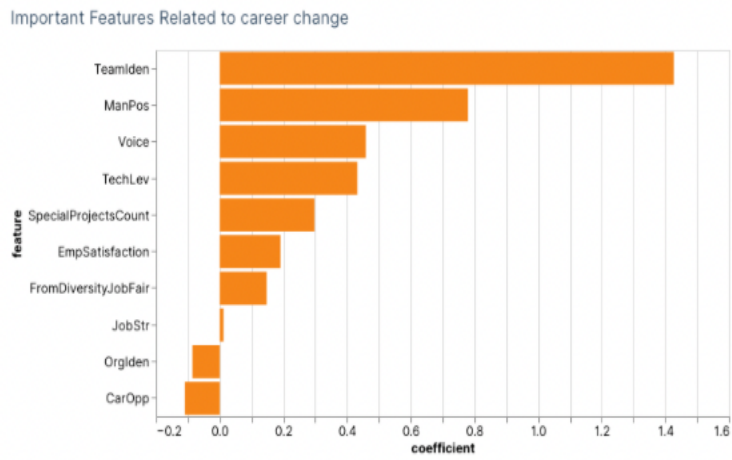
Important Features Related to career change

Figure A4.3 *Important Features related to career change.*
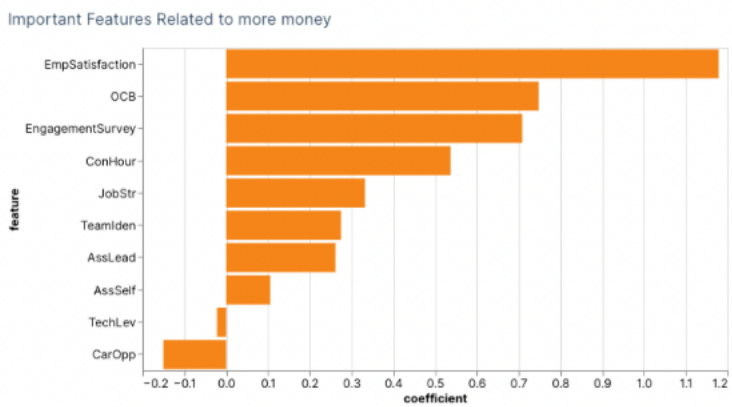
Important Features Related to more money

Figure A4.4 *Important Features related to career change.*
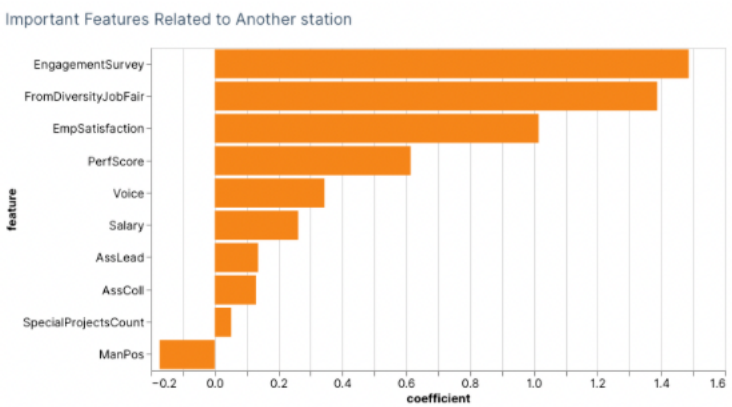
Important Features Related to Another station

Figure A4.5 *Important Features related to Another position.*